



<http://dx.doi.org/10.11646/zootaxa.3911.2.1>

<http://zoobank.org/urn:lsid:zoobank.org:pub:5C32A1B4-E4AB-4BC3-8E8A-1BF435587D17>

Marine sponges (Porifera: Demospongiae) from the Gulf of México, new records and redescription of *Erylus trisphaerus* (de Laubenfels, 1953)

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Abstract

Marine sponges usually constitute the most diverse group of the benthic community in coral reefs. Although they are reasonably well studied at the northern Gulf of Mexico (GMx), the southern GMx is poorly known and lacks records from many major reef systems that lie off the Mexican coast. The present taxonomic study is the first sponge account from Alacranes reef, the largest coral reef system in the GMx, and from the shallow reef banks of Sisal, both in the northwest Yucatan Peninsula. The 19 species herein described represent the first sponge fauna records from these reefs. Among these, seven species represent new record for GMx: *Erylus formosus*, *Cliona flavifodina*, *Spirastrella* aff. *mollis*, *Strongylacidon bermuda*, *Topsentia bahamensis*, *Agelas tubulata* and *Chelonaplysilla* aff. *erecta*. Twelve species are new records for the Southern GMx: *Erylus trisphaerus*, *Cliona amplicavata*, *Chondrilla caribensis*, *Halichondria lutea*, *Hymeniacidon caerulea*, *Axinella corrugata*, *Dragmacidon reticulatum*, *Chalinula molitba*, *Amphimedon caribica*, *A. complanata*, *Hyatella cavernosa* and *Dysidea variabilis*. Additionally, a redescription of *Erylus trisphaerus* is presented which had not been reviewed since its original description in 1953 off Western Florida, except that it was listed for north La Habana, Cuba.

Key words: Sponge, Biodiversity, Coral Reefs, Gulf of Mexico, Campeche Bank, Alacranes Reef

Introduction

Coral reefs are complex and diverse environments. Although hermatypic corals are an important hard structure and vertical component of the reef landscape, sponges also contribute to the framework and are more diverse than the reef corals (Pawlik *et al.* 2013). Sponges play many important roles in the coral reef communities, such as reworking solid carbonate through bioerosion, recycling nutrients and adding to primary production through microbial symbionts, as well as clearing the water column of prokaryotic plankton and serving as refuge and food for a variety of megafauna such as fishes, echinoderms, crustaceans, and others (Wulff 2001).

Historically, research on sponge biodiversity from the Gulf of Mexico (GMx) has been done mainly on the northern (USA) and east-southeastern regions (Cuba), where most of the current sponge species richness has been described. This pattern can be explained by the larger research effort in that area (Alcolado 1976; 1984; 2002; de Laubenfels 1953; 1936; Little 1936; Storr 1964), and as a result it seemed that the southern region of the GMx has a lower sponge species richness. Species diversity in this region is most certainly underestimated, owing to the limited number of sponge specialists and lack of funds to finance more sampling efforts in Mexican waters. The east Mexican Veracruz reef system is an exception where most sponge diversity information exists, as documented in studies such as those by Green (1977), Green *et al.* (1986), Gómez (2007; 2002) and González-Gándara *et al.* (2009). The sponge fauna from the Campeche Bank, in contrast, is relatively poorly known, and described only from a limited number of geographic sites (Gómez 2006; Rubio-Fernández 1997; Topsent 1889; 1984). Based on recent surveys at Alacranes and Sisal reefs in the Campeche Bank region, the present work aims at contributing to the southern GMx sponge species diversity knowledge, and allowed the redescription of a little-known species, *Erylus trisphaerus* (de Laubenfels 1953).

redescription of *Erylus trisphaerus*, plus discovery of a few new species to science that are currently being described. Clearly, a greater sampling effort covering larger areas, together with information from other reef areas nearly unknown for their sponge fauna, will increase the knowledge of this particular taxon in the Gulf of Mexico. Furthermore, future sampling for sponge diversity should also focus on fringing mangroves plus the deeper reef environments and other less studied sea-bottom habitats from the North-east Yucatan shelf.

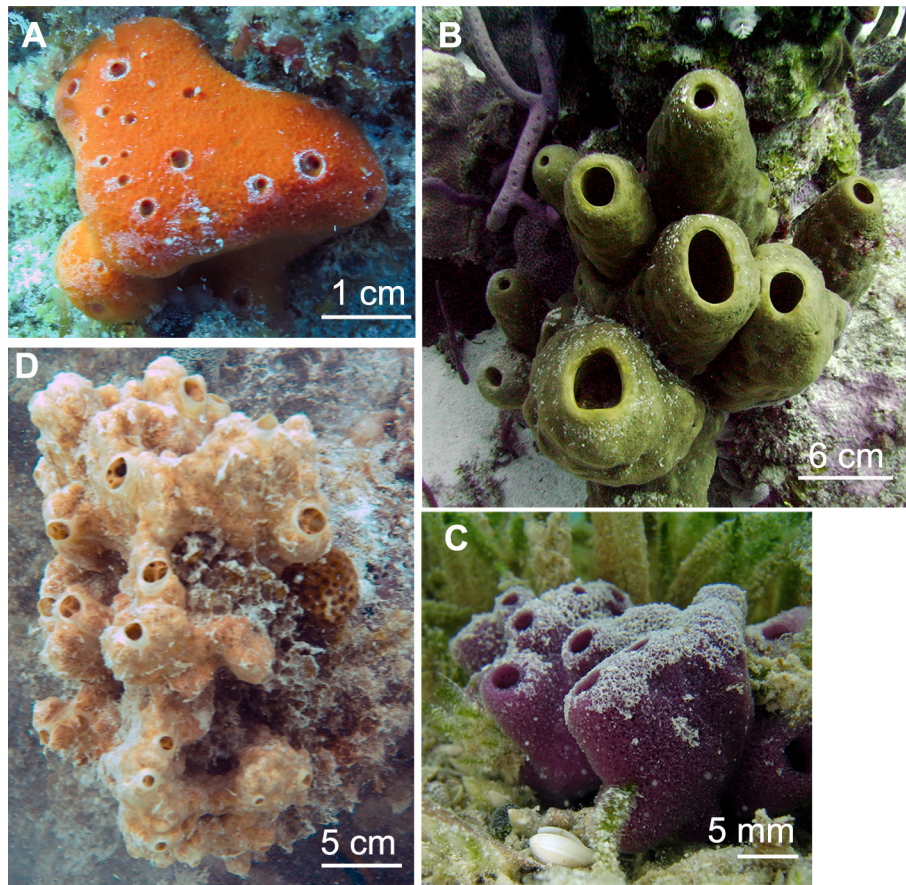


FIGURE 22. Sponges *in situ*: A. *Dragmacidon reticulatum*. B. *Agelas tubulata*. C. *Chalinula molitba*. D. *Dysidea variabilis*.

Acknowledgments

Especially thanks to Yolanda Hornelas (ICMyL-UNAM) for her support in SEM photography; María del Carmen Loyola Blanco for *Strongylacidon bermuda* photograph; Alfredo Gallardo, Fernando Mex (UAS-UNAM), and BDMY team for their support in the field work. We thank Secretaría de Marina (SEMAR) and Comisión Nacional de Areas Naturales Protegidas (CONANP) for their help with access to the Alacranes reef. This work was partially supported by a grant from the Comisión Nacional de Ciencia y Tecnología (CONACyT) to DU for studies in Postgraduate Program of Instituto de Ciencias del Mar y Limnología (PCMyL, UNAM), CONACyT-SEMARNAT No. 108285 and DGAPA-PAPIME PE207210 projects to NS. All specimens were collected under Mexican law (collecting permit number: 11802.271109.4094). We thank the comments of the anonymous referees that improved this manuscript.

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